ABSTRACT

A process for the production of hydrogen cyanide is provided, wherein hydrogen cyanide is synthesized by reacting methane or methane-containing natural gas, ammonia and oxygen-enriched air or oxygen in the presence of a catalyst comprising platinum or a platinum alloy; wherein the reactants are present in the following molar ratios

$$\frac{[O_2]}{[O_2 + N_2]} = 0.25 \text{ to } 1.0;$$

$$\frac{[CH_4]}{[NH_3]} = 0.95 \text{ to } 1.05; \text{ and}$$

where a molar ratio of ammonia to the sum of oxygen and nitrogen obeys the following relationship: $Y = m \cdot X - a$,

wherein

$$Y = \frac{[NH_3]}{[O_2 + N_2]}$$

$$X = \frac{[O_2]}{[O_2 + N_2]}$$

$m = 1.25$ to 1.40; and $a = 0.05$ to 0.14.